FILE COPY PIBS 3309E

1993 AIR QUALITY DATA SUMMARY REGIONAL MUNICIPALITY OF WATERLOO AND THE COUNTIES OF WELLINGTON AND BRANT

NOVEMBER 1994

Ontario

Ministry of Environment and Energy

ISSN 0840-7843

1993 AIR QUALITY DATA SUMMARY

REGIONAL MUNICIPALITY OF WATERLOO AND THE COUNTIES OF WELLINGTON AND BRANT

NOVEMBER 1994



Cette publication technique
n'est disponible qu'en anglais.

Copyright: Queen's Printer for Ontario, 1994
This publication may be reproduced for non-commercial purposes
with appropriate attribution.

PIBS 3309E

1993 AIR QUALITY DATA SUMMARY

REGIONAL MUNICIPALITY OF WATERLOO AND THE

COUNTIES OF WELLINGTON AND BRANT

Report prepared by:

F. Dobroff
Air Quality Assessment
West Central Region
Ontario Ministry of Environment and Energy

November 1994

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
MONITORING NETWORK	2
POLLUTANTS MONITORED	4
DATA ANALYSIS	
Guelph	11
Kitchener	17
Elmira	22
SUMMARY	27

LIST OF FIGURES

		PAGE
Figure 1	Wind Frequency Distribution - Cambridge	3
2	Guelph Air Monitors	12
3	Ozone - Guelph - Trend	14
4	Suspended Particulate Trend - Dolime	14
5	Kitchener Air Monitor	18
6	Sulphur Dioxide - Kitchener - Trend	20
7	Nitrogen Dioxide - Kitchener - Trend	20
8	Carbon Monoxide - Kitchener - Trend	21
9	Ozone - Kitchener/Waterloo - Trend	21
10	Elmira Air Monitors	24

LIST OF TABLES

		PAGE
Table 1	Air Quality Index - Frequency Distribution West Central Region - 1993	9
2	Guelph - Ozone	13
3	Suspended Particulates Near Guelph Dolime	16
4	Kitchener Air Quality Statistics - Continuous Monitors	19
5	Elmira Air Quality Statistics - Continuous Monitors	25
6	Elmira - Volatile Organic Compounds	26

INTRODUCTION

This report summarizes the results of air monitoring in the Regional Municipality of Waterloo, and the Counties of Wellington and Brant in 1993.

The Ministry of Environment and Energy's West Central Region has conducted monitoring in the area since the early 1970's. The Air Management Program in Ontario is based on controlling man-made emissions to meet ambient air quality objectives, which in turn are based on known effects on health, quality of life or sensitive vegetation, whichever is most stringent. To achieve these objectives, sources of pollution are identified, their emissions evaluated and appropriate control measures are instituted. Ambient air monitoring is used to identify pollution sources, evaluate the need for controls and then determine whether controls have been successful.

In addition to monitoring specific industrial sources, monitoring of a more general nature is also carried out in various localities to determine if air quality objectives are being met and to observe trends in air pollution.

The Ministry measured the Air Quality Index across the Province at over 30 locations, including Kitchener. A description of the AQI and the 1993 results appear in this report.

MONITORING NETWORK

The Ministry of Environment and Energy's West Central Region operated a network of monitors in Guelph, Kitchener and Elmira. Some of the monitoring was performed near industrial sources, in many cases, as a response to local complaints. Monitoring of a more general nature was also carried out at single stations in Guelph and Kitchener to characterize air quality in larger population centres and to measure the Air Quality Index.

The Ministry has a meteorological tower in Cambridge for measurement of wind speed and direction. Figure I illustrates the typical wind frequency distribution for the area and shows that winds from the southwest, west and northwest quadrants predominate almost 60% of the time. Consequently, wherever possible, stations are located downwind of suspected pollution sources with respect to these winds.

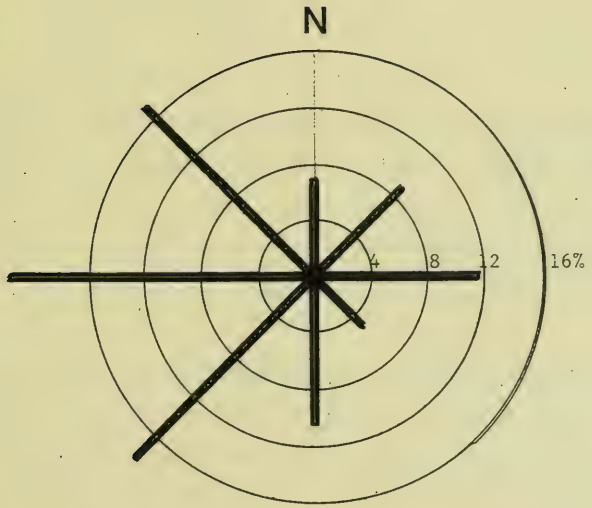
Some of the equipment used in the network is provided by Environment Canada under the National Air Pollution Surveillance (NAPS) program. The instruments are operated and maintained by the Ministry and data from the NAPS stations are provided to Environment Canada.

FIGURE 1

WIND FREQUENCY DISTRIBUTION

26066 - CLYDE RD. CAMBRIDGE

1993



Lines indicate direction from which wind blew

POLLUTANTS MONITORED

Two basic types of air pollutants are measured - gases and particulates (dust).

a) Gases measured with continuous analyzers include:

Sulphur Dioxide (SO_2) - monitored in Kitchener and Elmira for general ambient levels. SO_2 is a product of fuel combustion. Air quality objectives and their limiting factors are:

1-hour average - .25 ppm (vegetation effects)
24-hour average - .10 ppm (health effects in conjunction with particulates)
1-year average - .02 ppm (vegetation effects)

Carbon-Monoxide-(CO) - general ambient levels are measured in Kitchener. The major source of CO is the automobile. Objectives for CO are:

1-hour average - 30 ppm (health effects)
8-hour average - 13 ppm (health effects)

Ozone (O_3) - measured in Kitchener and Guelph to check general ambient levels. Oxidants are products of photochemical reactions involving oxides of nitrogen, hydrocarbons and sunlight. Ozone accounts for most of the oxidants produced. The sources of the precursor pollutants are mainly industrial and automotive. Concentrations follow very definite annual trends with highest levels occurring during the summer, and daily trends with highest levels occurring in mid-afternoon. Both patterns are directly related to temperature and the amount and intensity of sunlight.

Ozone and its precursors can be transported over great distance and can be augmented by local sources. Most of the high levels in Southern Ontario each summer arrive from the United States. An objective for ozone is:

1-hour average - 80 ppb (vegetation effects)

Oxides of Nitrogen - general ambient levels were measured in Kitchener and Elmira. They are a product of high temperature combustion sources including the automobile. The most abundant oxides are nitric oxide (NO) and nitrogen dioxide (NO_2). Objectives exist only for NO_2:

1-hour average - .20 ppm (odour)
24-hour average - .10 ppm (health effects)

Total Reduced Sulphur (TRS) - measured in Elmira. There is a one-hour TRS objective of 27 parts per billion (ppb), however, it is specifically for areas near Kraft pulp mills. There are no such mills in the Waterloo Region. The TRS measurement includes hydrogen sulphide (H_2S), the "rotten egg" gas as well as other sulphide compounds. A one-hour objective of 20 ppb exists for H_2S (given below). However, H_2S can actually be smelled at 10 ppb or less.

1-hour average - 20 ppb (odour)

b) Particulates (dust) can be measured by three methods, each relating to a different size range of particles.

Dustfall - heavy visible material generally greater than 50 microns in size (one micron is one-millionth of a metre) that settles out of the atmosphere due to gravity. A plastic container is exposed for one month and the collected dust is weighed and expressed as a deposition rate of grams/square metre/30 days.

The measurement is imprecise and observations are restricted to relatively local areas. However it is a practical method of measuring the visible dust which often causes complaints. Criteria are:

1-month average - 7.0 g/m^2/30 days (nuisance effects)
1-year average - 4.5 g/m^2/30 days (nuisance effects)

Total Suspended Particulates (TSP) - measured with high volume (hi-vol) samplers near industrial sources and for general ambient observations. The particles range from submicron to about 50 microns in size. The hi-vol sampler draws air through a glass fibre filter for a 24-hour period. The exposed filter is weighed and the weight of the solids collected is converted to an equivalent concentration in air expressed in micrograms per cubic metre. The samplers run once every six days. Criteria based on visibility and health effects are:

24-hour average - 120 ug/m^3
1 year geometric mean - 60 ug/m^3

Soiling Index (Coefficient of Haze) - general ambient levels were measured in Kitchener and Elmira by tape samplers which measure fine particles less than 10 microns. Coefficient of haze tape samplers determine hourly soiling values. Air is drawn through a filter paper tape for one hour. A beam of light is shone through the paper before and after the airborne particles are collected. The difference in light transmission is translated into a coefficient of haze (COH) unit. The paper tape then advances and a new hourly sample is collected. The criteria shown below are based largely on correlations with total suspended particulate (TSP).

24-hour average - 1.0 COH's/1000 linear feet of air
1-year average - .5 COH's/1000 linear feet of air

c) Air Pollution Index (API) - the API has been measured since 1970 and is now incorporated as a subindex of the new air Quality Index (AQI). It is derived from 24-hour average concentrations of sulphur dioxide and soiling index, based on the following equation:

Kitchener

$$API = 3.33 (9.1\ COH + 120.8\ SO_2).^{74}$$

where:

COH is the 24-hour average soiling index concentration expressed in coefficient of haze units.

SO_2 is the 24-hour average concentration of sulphur dioxide expressed in parts per million.

Air Quality Index (AQI) - the AQI is a more comprehensive information system by which the public can be informed about air quality on a daily and even hourly basis. The index includes the API (described above) which had been in place since 1970. In the AQI, hourly concentrations of sulphur dioxide, soiling index (particles), nitrogen dioxide, carbon monoxide, ozone and reduced sulphur compounds are all converted to a common scale of numbers. In addition to these hourly measurements, 8-hour average levels of carbon monoxide and the API, a function of sulphur dioxide and particles are also included as subindices, making a total of 8 potential subindices measured every hour. The official AQI broadcast is the highest subindex at that time.

The AQI scale is classified as follows:

0 - 15	Very Good
16 - 31	Good
32 - 49	Moderate
50 - 99	Poor
100+	Very Poor

Index levels up to 31 should have little or no effect on people and the environment. Beginning at the moderate level, effects such as odour, vegetation damage and some health effects to sensitive individuals start to occur.

In the poor and very poor categories, these symptoms become more and more acute, such that virtually all people would be hampered in the very poor range.

When moderate levels or higher are measured, public health advisories can be issued to the public along with the actual index number.

The AQI started in June 1988, and annual 1993 statistics on hourly frequencies in the five concentration categories for seven West Central Region stations are presented in Table 1.

As can be seen, ozone (O_3) was generally the most problematic pollutant across the region. This pollutant and others in the AQI will be discussed in more detail in this report.

TABLE 1
AIR QUALITY INDEX - 1993
HOURLY FREQUENCY DISTRIBUTION

		0 - 15 Very Good	16 - 31 Good	32 - 49 Moderate	50 - 99 Poor	100+ Very Poor
26060	SO_2	8485	0	0	0	0
KITCHENER	COH	8422	66	13	0	0
	O_3	7619	424	14	0	0
	NO_2	8430	0	0	0	0
	CO 1 hr	8419	0	0	0	0
	CO 8 hr	8419	0	0	0	0
	API	8357	103	0	0	0
27067	SO_2	8696	0	0	0	0
ST. CATHARINES	COH	8469	115	7	0	0
	O_3	7884	681	32	0	0
	NO_2	8204	0	0	0	0
	CO 1 hr	7952	0	0	0	0
	CO 8 hr	7952	0	0	0	0
	API	8501	94	0	0	0
27056/72	SO_2	8688	0	0	0	0
NIAGARA FALLS	COH	8494	30	0	0	0
	O_3	7948	602	18	0	0
	API	8362	101	0	0	0

TABLE 1 Continued
AIR QUALITY INDEX - 1993
HAMILTON
HOURLY FREQUENCY DISTRIBUTION

		0 - 15 Very Good	16 - 31 Good	32 - 49 Moderate	50 - 99 Poor	100+ Very Poor
29000 HAMILTON DOWNTOWN	SO_2	8712	0	0	0	0
	COH	7839	665	83	1	0
	O_3	8049	259	1	0	0
	NO_2	7297	0	0	0	0
	CO 1 hr	8737	0	0	0	0
	CO 8 hr	8737	0	0	0	0
	TRS	8581	132	13	0	0
	API	7063	1444	34	0	0
29105 HAMILTON EAST	SO_2	8713	0	0	0	0
	COH	7980	448	74	0	0
	O_3	7896	338	5	0	0
	TRS	8142	8	0	0	0
	API	7658	843	5	0	0
29114 HAMILTON MOUNTAIN	SO_2	8612	0	0	0	0
	COH	8017	275	21	0	0
	O_3	8055	503	8	0	0
	NO_3	8499	0	0	0	0
	TRS	8506	87	15	2	0
	API	7670	559	8	0	0
29118 HAMILTON WEST	SO_2	8589	0	0	0	0
	COH	7676	651	74	0	0
	O_3	8146	292	0	0	0
	NO_2	7533	6	0	0	0
	TRS	8321	70	12	0	
	API	7198	1119	0	0	0

Data Analysis

Guelph

The main station (28028) in Guelph which measures general ambient air quality is located at Exhibition Park (Figure 2). Due to continued low concentrations of sulphur dioxide and particulates, the station was downscaled in 1993 from an AQI station to a lone ozone monitor.

Ozone concentrations (Table 2) exceeded the hourly objective during only 3 hours in 1993, during the summer. This was an improvement from prior years. Figure 3 shows a six year trend of annual ozone exceedances. The number observed each year is largely dependent on the climate of that summer although the volume of emissions of the precursor pollutants - nitrogen oxides/hydrocarbons, is a large factor as well.

Ground level ozone is a photochemical product of the chemical reaction between nitrogen oxides and certain hydrocarbons in the presence of sunlight. The highest levels all occurred during southerly winds and were largely imported from the United States. At these times levels were high throughout Southern Ontario. In recognition of the seriousness of the ozone problem, the Canadian Council of Ministers of the Environment decided in 1988 to develop a management plan for the control of volatile organic compounds (VOC) and nitrogen oxides (NOX) which generate ozone. A three phase program will be undertaken in Canada. The United States is undergoing its own program such that a target date of the year 2005 has been set to resolve the ground level ozone problem. Much concern is expressed also about ozone loss in the upper atmosphere where it is beneficial in reducing ultra-violet radiation. Control measures on chlorofluorocarbons (CFCs) are being implemented, however upper level ozone is not the focus of this report.

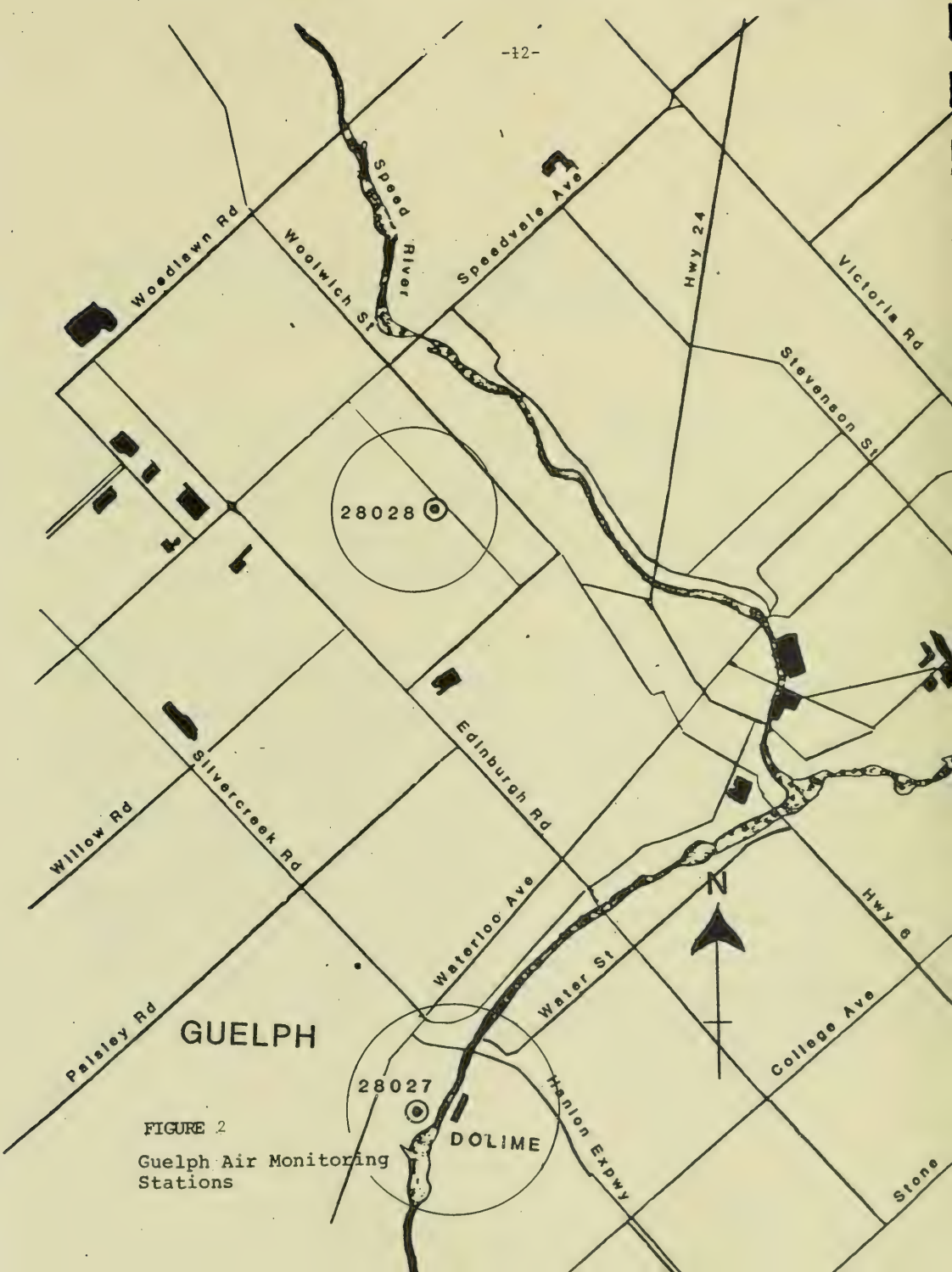


FIGURE 2

Guelph Air Monitoring Stations

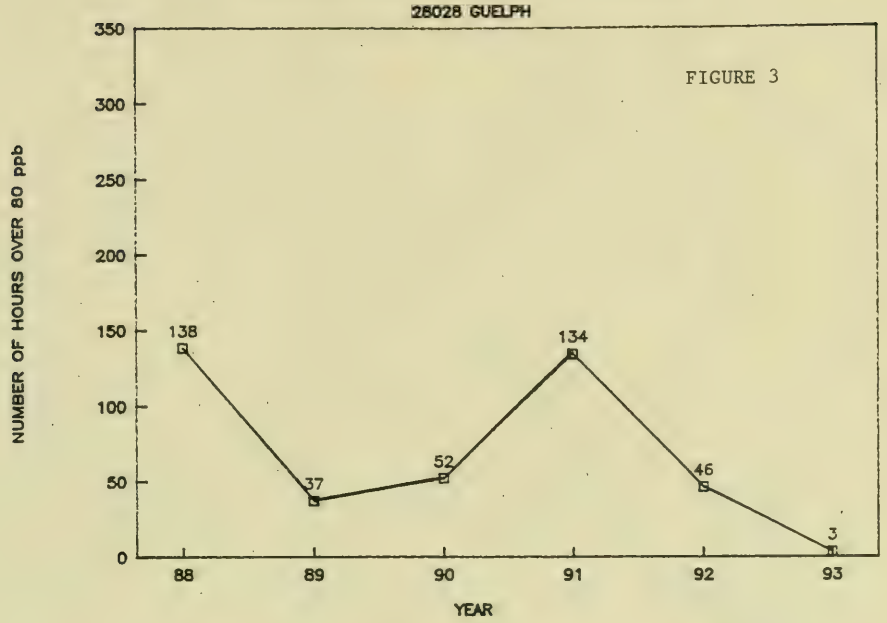
TABLE 2
SUMMARY STATISTICS - GUELPH
OZONE
28028 - EXHIBITION PARK

Units - parts per billion

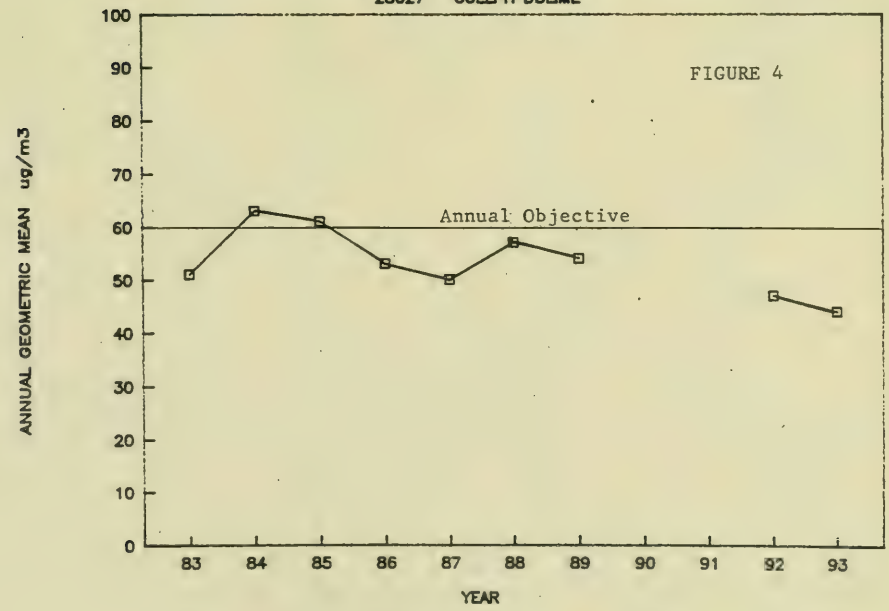
Ontario Objective: 80 ppb - 1 hour - 80

YEAR	AVERAGE	MAXIMUM	NO. OF HOURS ABOVE OBJECTIVE
1993	.024	.084	3
1992	.023	.109	46
1993	.027	.113	134 .

OZONE EXCEEDANCE TREND



SUSPENDED PARTICULATE TREND



Particulates Near Guelph Dolime

Suspended particulates measurements were resumed near Guelph Dolime (a limestone quarry operation) at the sewage treatment plant on Wellington Street West. The company had been the source of white dust complaints for several years, and in 1987 the company installed scrubbers on their lime kilns following the issuance of a Control Order. This action was effective in reducing visible emissions and complaints ceased. The hivol monitor was subsequently removed from service in 1990.

However, complaints of white dusting recommenced and the monitor was placed back in service in 1992.

Data are summarized in Table 3 and show low average concentrations well below the annual objective in both 1992 and 1993. The trend graph in Figure 4 shows lower overall levels compared to earlier years.

However, elevated concentrations above the daily objective coincided with east or northeast wind days - from Dolime, including a peak of 630 ug/m^3 in 1992. The samples are analyzed for carbonate and these levels also corresponded to east wind frequency. These data suggest that Dolime can have an impact on particulate levels in the vicinity of the plant. The frequency of TSP exceedances at the measurement location is small - 6 samples out of 124 over two years, however, east winds are not frequent. The monitor is situated at this location due to complaints history.

The company is now modifying the kiln exhaust system, and this is expected to improve the efficiency of the scrubbers. This should be complete by late 1994.

TABLE 3
SUSPENDED PARTICUALTES - NEAR GULEPH DOLIME
micrograms per cubic metre
28027 - HANLON/SPEED, GUELPH

ONTARIO OBJECTIVES: 120 (24 HR)
60 (annual geometric mean)

Year	No. of Samples	Geometric Mean	Maximum 24 hr.	No. of Samples > 120
1993	45	44	630	3
1992	79	47	180	3
1989	58	54	186	2

Kitchener

Air monitoring was conducted at station 26060 - West/Homewood in Kitchener (Table 4). The station location is shown in Figure 5.

The station showed acceptable levels of sulphur dioxide (SO2), soiling index (COH), carbon monoxide (CO) and nitrogen dioxide (NO_2), meeting all criteria. Trend graphs in Figures 6 - 8 for SO_2, CO and NO_2 illustrate mostly declining levels dating back as far as 1977. It should be noted that the move of the station to its present location from the old site adjacent to the Conestoga Parkway caused a major decrease in 1990. Parkway traffic had been influencing the readings up to that time.

These data help formulate the Air Quality Index for the city. The data given in Table 1 shows that with the exception of ozone (O_3), soiling index (COH) and API, the readings all fall in the Very Good range of the AQI. The higher API readings were driven by the COH values. The COH displayed 13 hours in the Moderate range, all during rush hours or night time inversion conditions. Traffic was probably the major contribution to these readings.

The Kitchener station measured 14 hours above the hourly ozone objective of 80 ppb in 1993, all falling in the Moderate range of the AQI. Trends in ozone are shown in Figure 9. Random variations tend to occur from year to year, largely dependent on the climate of each summer.

As mentioned earlier, a NOX/VOC control program in Canada and the United States is being implemented in a three phase approach with the goal of resolving the ground level ozone problem by the year 2005.

FIGURE 5

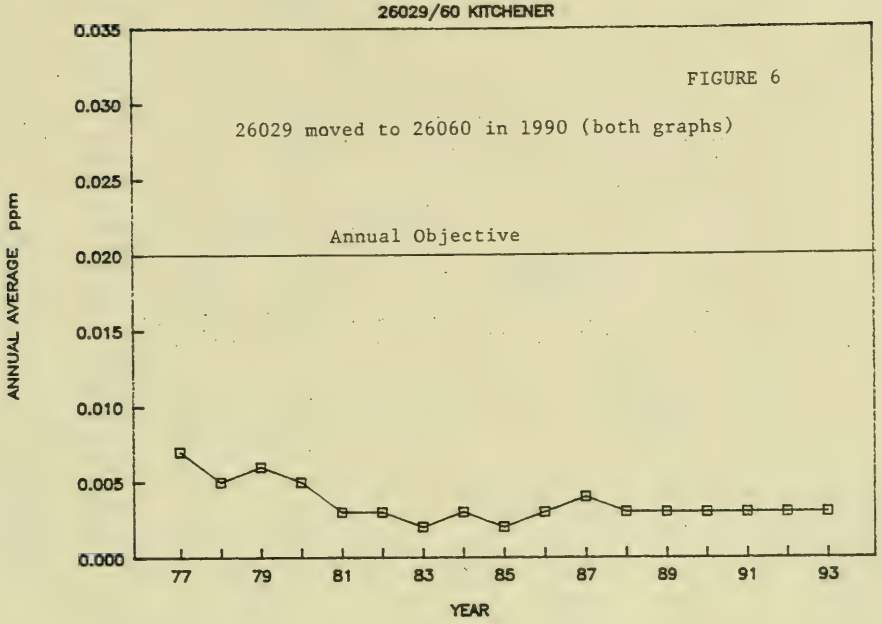
KITCHENER AQI STATION



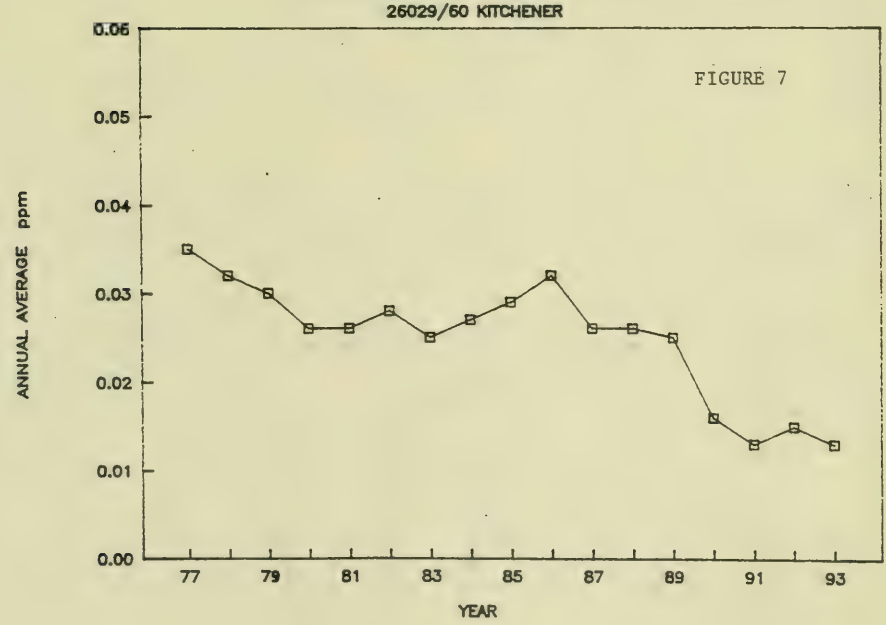
TABLE 4
SUMMARY STATISTICS - KITCHENER
CONTINUOUS POLLUTANTS
26060- WEST AVENUE/HOMEWOOD

	Year	Average	Maximum			Objectives				No. Times over Objective		
			1 hr	8 hr	24 hr	1 hr	8 hr	24 hr	1 yr	1 hr	8 hr	24 hr
Sulphur Dioxide (SO_2) - ppm	1993 1992 1991	0.003 0.003 0.003	0.06 0.07 0.06		0.02 0.04 0.02	0.25		0.10		0 0 0		0 0 0
Soiling Index COHs/1000 ft	1993 1992 1991	0.25 0.23 0.24			0.8 0.7 0.8			1.0	0.50			0 0 0
Carbon Monoxide (CO) - ppm	1993 1992 1991	0.4 0.4 0.6	7 6 10	5 3 5		30	13			0 0 0	0 0 0	
Nitrogen Dioxide (NO_2) - ppm	1993 1992 1991	0.013 0.015 0.013	0.10 0.06 0.07		0.04 0.04 0.04	.20		.10		0 0 0		0 0 0
Ozone (O_3) - ppm	1993 1992 1991	0.023 0.023 0.027	.093 .099 .118			.08				14 16 77		

SULPHUR DIOXIDE TREND



NITROGEN DIOXIDE TREND

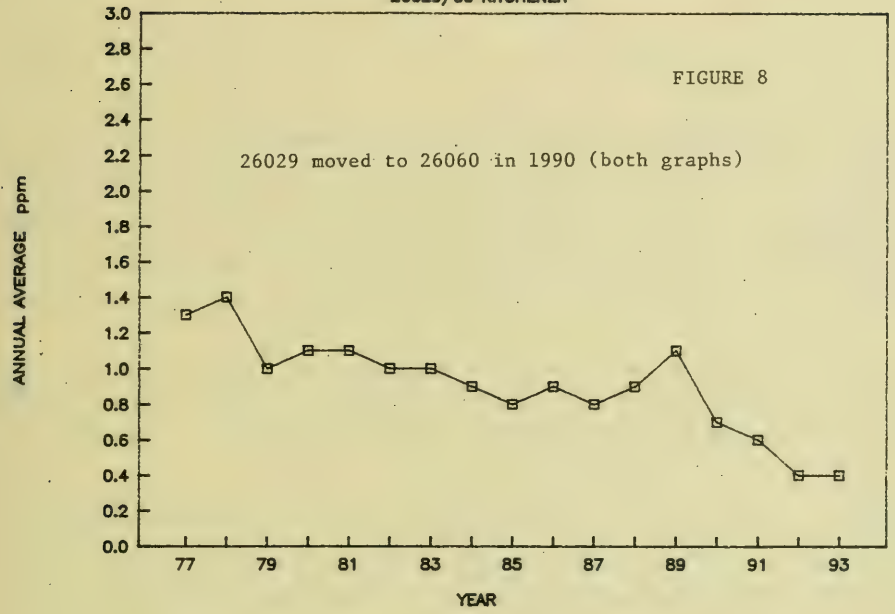


CARBON MONOXIDE TREND

26029/60 KITCHENER

FIGURE 8

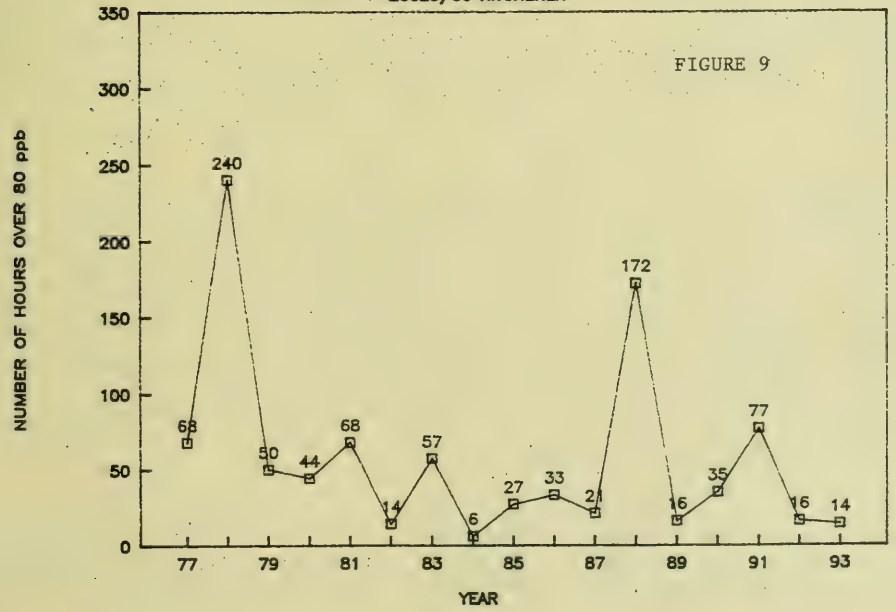
26029 moved to 26060 in 1990 (both graphs)



OZONE EXCEEDANCE TREND

26029/60 KITCHENER

FIGURE 9



Elmira

A new air monitoring station was located in Elmira in 1993 near the industrial zone which lies on the eastern boundary. Station 26069 - Park/Duke (Figure 10) measured sulphur dioxide, nitrogen oxides, total reduced sulphur (TRS) and soiling index continuously and volatile organic compounds (VOC) on an every 12th day schedule basis.

Concentration summaries of the continuous parameters are given in Table 5 and showed low levels of all the contaminants, below all criteria.

Occasionally, sulphur dioxide levels became briefly elevated due to emissions of Sulco Chemicals Ltd., a sulphuric acid manufacturer 600 metres southeast of the station. A second SO_2 analyzer located at the Elmira sewage treatment plant adjacent to Sulco recorded elevated levels more frequently, it being downwind of prevailing winds.

The company was given a Certificate of Approval to raise its main stack, which was carried out in April 1994. This measure has helped to significantly reduce the incidence of short term SO_2 levels at station 26069 and in the vicinity of the plant at the STP.

The main air pollution problems in Elmira relate to organic chemicals, which sometimes create odour. Station 26069 measured volatile organic compounds (VOC) on an every 12th day schedule (midnight to midnight). The monitoring methodology involves drawing a measured volume of air thorough a glass cartridge containing an adsorbent material. The sample is then desorbed and analyzed by gas chromatography at the laboratory. A total of 29 compounds are measured and summary statistics for the 1993 measurements are given in Table 6.

Concentrations of all the contaminants were generally low and well below the relevant criteria. One pollutant, toluene, was dominant when winds were from the east, from

Uniroyal Chemicals Ltd. The toluene concentrations in the regular samples peaked at 37 ug/m^3, however, these elevated readings were imprecise, as laboratory equipment was not calibrated to operate in such a concentration/mass range. In order to reduce the mass loadings, a few samples were run over half hour periods to get a more accurate concentration level. These samples were run during east wind conditions. One of those samples showed a toluene peak of 131 ug/m^3, far below the standard of 2000, but well above normal levels.

The company is committed to an abatement program which will reduce their toluene emissions, as well as other organic chemical emissions.

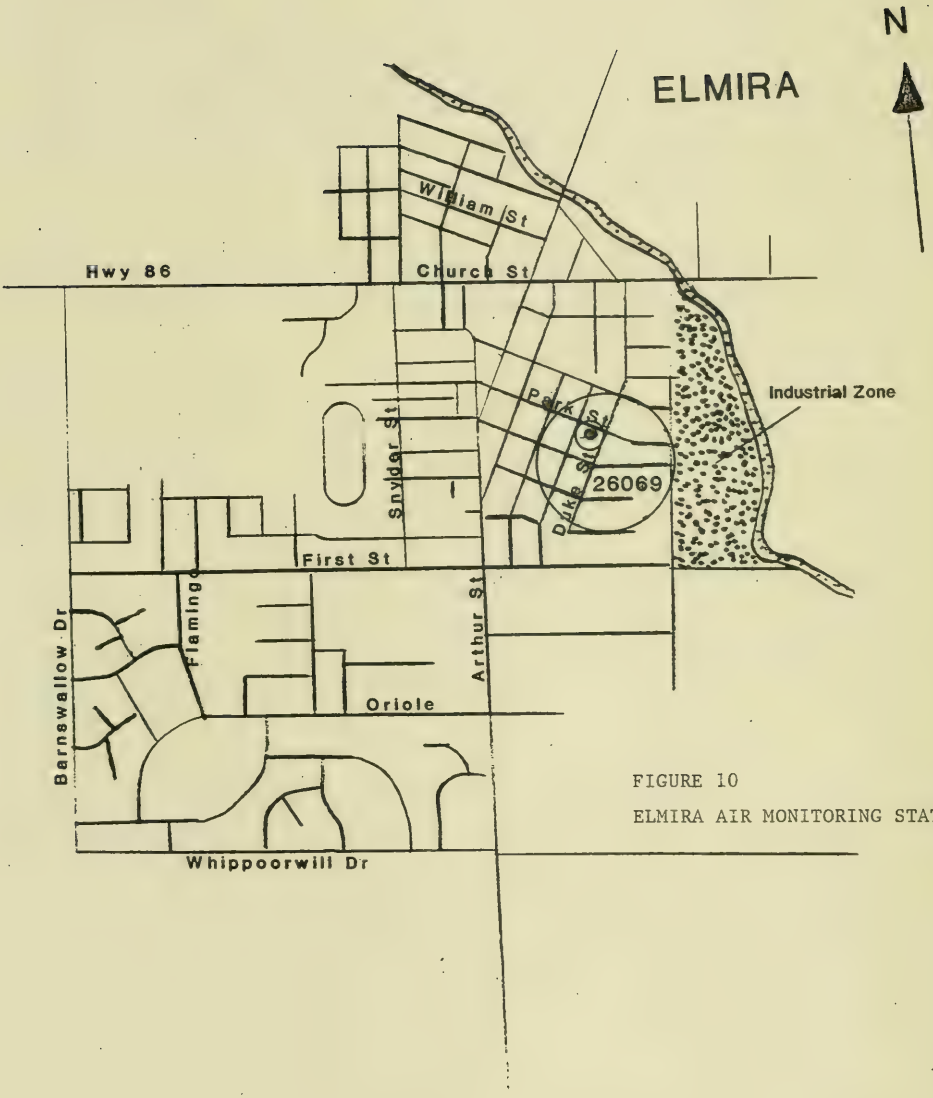


FIGURE 10
ELMIRA AIR MONITORING STATION

TABLE 5
SUMMARY STATISTICS - ELMIRA
CONTINUOUS POLLUTANTS
26069 - PARK/DUKE

	Year	Average	Maximum		Objectives			No. Times over Objective	
			1 hr	24 hr	1 hr	24 hr	1 yr	1 hr	24 hr
Sulphur Dioxide (SO_2) - ppm	1993	0.003	0.17	0.04	0.25	0.10	0.02	0	0
Soiling Index COHs/1000 ft	1993	0.22		0.8		1.0	0.50		0
Nitrogen Dioxide (NO_2) - ppm	1993	0.009	0.08	0.03	.20	.10		0	0
Total Reduced Sulphur (TRS) - ppb	1993	0.7	13		20 (H_2S)			0	

TABLE 6
1993 VOLATILE ORGANIC COMPOUNDS (VOC)
UNITS - MICROGRAMS PER CUBIC METRE
26069 - PARK/DUKE, ELMIRA

	24 HR GUIDELINE	No of Detects	Avg	Max
DICHLOROMETHANE	1765	14	0.4	1.2
1,1-DICHLOROETHANE		0		
1,1,1-TRICHLOROETHANE	115000	14	2.8	9.2
1,2-DICHLOROETHANE	400	1		0.1
CARBON TETRACHLORIDE	600	14	0.5	0.7
BENZENE		14	0.8	1.5
1,2-DICHLOROPROPANE	2400	0		
TRICHLOROETHYLENE	28000	4	0.1	0.2
TOLUENE	2000	14	15.6	36.8
1,1,2-TRICHLOROETHANE		0		
TETRACHLOROETHYLENE	4000	4	0.2	0.5
CHLOROBENZENE		0		
ETHYLBENZENE	4000	13	0.6	2.1
O-XYLENE	2300	14	0.8	2.9
1,1,2,2-TETRACHLOROETHANE		0		
1,4-DICHLOROBENZENE		14	1.1	6.3
1,2,4-TRIMETHYLBENZENE	1000	14	0.7	1.4
1,3-BUTADIENE		3	0.1	0.1
CYCLOHEXANE	100000	10	0.1	0.2
HEXANE	12000	14	0.7	2.0
1,3,5-TRIMETHYLBENZENE		13	0.2	0.5
ISOPRENE		11	0.1	0.5
M-XYLENE	2300	14	2.7	9.4
STYRENE	400	4	0.1	0.4
CHLOROMETHANE	7000	0		
1,2-DIBROMOETHANE		0		
1,1-DICHLOROETHENE	35	12	0.2	0.5
TRICHLOROMETHANE (CHLOROFORM)	500	9	0.2	0.5
VINYL CHLORIDE	1	0		

SUMMARY

This report has summarized the results of ongoing air monitoring in the Waterloo and Wellington areas. Industries causing air pollution problems have initiated or completed abatement programs to reduce their emissions.

General air quality as characterized by stations in Guelph, Kitchener and Elmira was generally very good, with the exception of ozone episodes during the summer, which were common to the rest of Southern Ontario.

Long term programs in both Canada and the United States are being implemented to overcome the ground level ozone problem, but as an interim measure there is a joint Federal/Provincial initiative to forecast high ozone days in the summer in routine weather reports. The public will be advised that sensitive individuals may experience respiratory symptoms and should alter their activities accordingly. The public will be encouraged to reduce their use of automobiles, to car pool, to use public transit and to avoid the use of paints and solvents and gasoline powered equipment such as lawn mowers.

Much of the air monitoring is automated and linked via a Province-wide telemetry system. This system permits all of the Ministry's stations with continuous analyzers to send data directly to a central computer facility in Toronto allowing for data availability on a real-time basis. This new system allows for immediate access to data in Hamilton and in Toronto, and also allows for remote control and maintenance of the instruments. All of this results in a more efficient monitoring program.

One purpose of the telemetry system is to facilitate the Air Quality Index (AQI). The AQI is a function of six different pollutants, which form up to eight separate subindices. Concentrations of sulphur dioxide, soiling index, carbon monoxide, nitrogen dioxide, total reduced sulphur and ozone are all individually converted to a common scale of index numbers with the same advisory or alert levels as the previous API i.e., 32, 50, 75 and 100. Not all stations measure all of the parameters, but the highest hourly subindex is reported several times daily to the public. The pollutant measured by this subindex may also be identified. The intent of the new index is to better inform the people of Ontario of air quality in their local area.